NATURAL RESOURCES CONSERVATION SERVICE CONSERVATION PRACTICE Specifications BRUSH MANAGEMENT (acre) Code 314 DEGREE OF INFESTATION BY SPECIES

т	Δ	R	F	1

*Kind of Brush	Pe	ercent Canop	y Cover		Plants per acre			
	Dense	Medium	Light	Extra Heavy	Dense	Medium	Light	Type of transects
Algerita	Over 26	15-25	5-14					Line Intercept
Broom snakeweed	Over 20	5-20	Less than 5					726X6' Belt
Catclaw					over 200	100-199	99 or less	726 X 6' Belt
Cholla					over 250	130-250	129 or less	726 X 6' Belt
Creosotebush					over 250	130-249	129 or less	726 X 6' Belt
Ponderosa/Mixed Conifer**					over 800	300 – 800	300 or less	1/10 th acre plots totaling ½ acre in size
Juniper or **Pinon				Over 350	250	100-249	99 or less	1/10 th acre plots totaling ½ acre in size
Mesquite	Over 25	10-24	5-9					Line Intercept
Pricklypear ***					over 250	130-299	129 or less	726 X 6' Belt
Rabbitbrush	Over 35	15-34	5-14					Line Intercept
Sagebrush (Sand)	Over 35	20-34	5-19					Line Intercept
Sagebrush (Big)	Over 35	20-34	5-19					Line Intercept
Shinnery Oak	Over 26	15-25	5-14					Line Intercept
Shrub Oak	Over 30	15-29	5-14					Line Intercept
Tarbush					Over 300	130-299	129 or less	726 X 6' Belt
Saltcedar	Over 30	10-30	Less than 10					Line Intercept

^{**}Not applicable on forest and/or woodland sites. ***Plants are counted as 1 mot is one plant.

Specification - 314 - 2

* On some ecological sites, these species may be part of the climax plant community. The lower limits of "light" should be that percentage composition which is allowed for the ecological site. (Refer to the ecological site description). Species composition lower than limit of light (above), or within range of that level described in the ecological site description shall not be treated unless justification to do so is approved by the ASTC/Technical Services.

Recommended herbicides, chemical rates and mixtures will be applied according to manufacture's label and as recommended in "Chemical Weed & Control Guide for New Mexico Rangelands" 400 B 17. Prior to application, any recommended deviations from the NMSU "Chemical Weed & Control Guide for New Mexico Rangelands" 400 B 17 are to be submitted to the State Resource Conservationist (SRC) for review, concurrence and authorization. SRC concurrence and authorization is to be documented in writing and made part of the specifications provided in the project job sheet. Any recommended deviations submitted to the SRC must be made by a New Mexico certified public applicator.

The following specifications for reduced rate aerial application of tebuthiuron will only be used for Big Sagebrush, Creosote and Tarbush when objectives include brush management for Wildlife. Treatment must address specific habitat deficiencies as documented on Wildlife Habitat Evaluation Guide Sheets for species of concern. Reduced rates for control of all other brush species must have ASTC/Technical Services Approval.

Plant Name: Creosotebush & Tarbush

SPECIES	METHODS	TIME	MATERIALS	TECHNIQUES OF OPERATIONS
Creosote Tarbush	Aerial	Prior to Rainy Season	Tebuthiuron	0.3 to 0.75 lb active ingredient/acre of 20P formulation on sandy loams, including fine sandy loam, very fine sandy loam, loam, silt, silt loam, loamy sand including loamy fine sand and loamy very fine sand, sand including fine sand and very fine sand. Wildlife management goals and objectives and expected percent kill of target species must be documented in brush management plan. Apply on medium to dense canopy having grassland potential.
Big Sagebrush	Aerial	Prior to Rainy Season Late summer or fall.	Tebuthiuron	0.3-0.5 lb. active ingredient/acre of 20P formulation on sandy loams including fine sandy loam, very fine sandy loam, loam, silt, silt loam, loamy sand including loamy fine sand and loamy very fine sand, sand including fine sand and very fine sand, cama silty loam, silt, sandy clay loam. Wildlife Management goals and objectives and expected percent kill of target species must be documented in brush management plan. Apply on medium to dense canopy having grassland potential. Plant kill may require two growing seasons or more. Areas of high clay soils tend to have a lower kill rate of target plants when tebuthiuron is used.

Plant Name: Big Sagebrush

ГК	ant Name: Big Sagebrush			
	Treatment Method	Where Applicable	When Applicable	Remarks
1.	Mechanical. Removal of top growth. This may be accomplished by shredding or beating the top growth so that all the twigs or branches are removed to within 4" or less of the ground surface. Removal of top growth will be necessary in consecutive years to complete the practice, as determined by the cooperator and the conservationist.	Limited to mature even age stands in areas with good understory vegetation and no rabbitbrush or rockbrush.	When big sage has reached full leaf, generally from May 15 to July 15.	
2.	Plowing. Brushland plow or similar equipment. Cut in a manner to sever plants at least 4" below ground level. Any other equipment, which will ensure 90% reduction, is acceptable.	All stands where a good understory of desirable grasses does not exist and does not exist and areas relatively free of stones	Early spring or fall prior to seeding date to assure kill and firm seed bed	Seeding is required as a follow-up measure Brush reduction should be timed with range planting. Practice applications are limited to moderate slopes unless no erosion hazard exists.
3.	<u>Chopping.</u> (Marden or Fleco Brush Chopper)	Stony areas where sagebrush is mature, brittle and free of young sagebrush plants and rabbitbrush.	Late winter	
4.	Scalping Road maintainer	Very limited application no level areas mature stands.		
5.	Chaining. In two directions (opposite) with chain at least 70#/ft. Preferably 2 or 3 chains with roller hitch speed of crawler tractor at least 3 mph.	Limited to areas of mature stands of big sagebrush with good understory of desirable vegetation and relatively level land without hummocks.	Winter and early spring before frost leaves soil	
6.	Aerial application of pellets. Chemical: Recommended herbicides, chemical rates and mixtures will be applied according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.	Areas of mature Big Sagebrush with good understory of desirable vegetation.	Summer or fall in anticipation of rainfall.	Herbicide may kill or damage pinyon, juniper, & pondorosa pine trees scattered throughout the sagebrush, caution may need to be exercised to avoid them. DO NOT APPLY WHEN THERE IS SNOW ON THE SOIL OR SOIL IS SATURATED. Rabbitbrush will not be controlled by herbicide and may replace sagebrush after treatment. Plant kill may require two growing seasons or more. Areas of high clay soils tend to have a lower kill rate of target plants when tebuthiuron is used.

NRCS, NM August, 2005

Plant Name: Broom Snakeweed

Treatment Method	Where Applicable	When Applicable	Remarks
Chemical Application by Aerial or Ground Equipment Chemical rates and mixtures according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.	On heavily infested ranges where grazing management will not reduce the infestation by plant succession in a reasonable time.	In fall at late to post bloom. Soil temperatures at 6 in should exceed 45 degrees F.	Longevity of treatment may not exceed three years. Reference: Broom Snakeweed Response to Herbicides." Ag. Exp. Bulletin #706 - Kirk McDaniels Snakeweed: "Problems and Perspectives" NMSU Bulletin #75.

Plant Name: Catclaw Mimosa

	Treatment Method	Where Applicable	When Applicable	Remarks
1.	Rootplowing: Reduction is achieved by cutting at least 9" below the surface. Any instrument that will accomplish this is satisfactory. Range planting is required as a follow-up measure.	Medium to heavy stands only	Anytime, preferably in the spring or early summer before the anticipated rainy, season to coordinate with seeding.	Low production potential limits the application of this type of treatment to areas of 13" or higher rainfall.
2.	Hand Grubbing: Plants must be cut below the bud zone.	Light stands only	Anytime	Adapted to light stands of young plants where most of the bushes do not exceed 2" in diameter.
3.	<u>Bulldozing:</u> The plants must be uprooted or cut off below the bud zone.	Light and medium stands only	Anytime	
4.	Chemical: Recommended herbicides, chemical rates and mixtures will be applied according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.			

Plant Name: Cholla Cactus

	Treatment Method	Where Applicable	When Applicable	Remarks
1.	Rootcutting, Grubbing, and Stacking: Cut or in any manner sever the plants at least 3" below ground level.	Deep, rock free soils, and on areas free of light stands of pinyon- juniper. A complete total treatment should be developed on mixed brush sites.	Year long, except when soil is frozen. Best results in December & January or dry summers	Gives effective kill on all size classes. Care should be taken not to scatter broken joints. Burn dry stacks.
2.	Hand Grubbing:	Light stands	Any time, except when ground is frozen or wet. Best results in January or December or dry summers.	Gives good kill when properly done & joints cleaned up.
3.	Cabling: Pulling flexible cable between two power vehicles to uproot and drag from the soil. First cable of swiveled double loop to be a minimum of one inch flexible (rope core) cable, two way cabling (1 trip each in opposite directions.) Speed will not exceed 5 m.p.h.	Applicable only to Guadalupe Lincoln, Torrance, DeBaca, and Quay Counties in the CP-3 Subresource Area. Dense Stand of large uniform cholla stands in areas without woody plants. NOTE: Limited to areas where hard freezes are followed by cold, dry weather.	After first hard freeze to Jan. 31, with good soil moisture to insure plant pull without breaking off at root collar. Moisture very important	Scattered joints may resprout.
4.	<u>Chemical:</u> Recommended herbicides, chemical rates and mixtures will be applied according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.	Light or sparse cholla stand	Prior to anticipated rainfall.	Plant kill may require two growing seasons.

Plant Name: Cactus - Prickly Pear

Treatment Method	Where Applicable	When Applicable	Remarks
<u>Chemical</u> : Recommended herbicides, chemical rates and mixtures will be applied according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.			Plant kill may require two growing seasons.
Chemical: Individual Plant Treatment: Surmount** is a combined product that includes picloram and fluroxypyr chemicals. See the Texas A&M "Brush Buster" series on prickly pear control that includes a recommendation for Surmount applied only as an IPT spray http://callahan-tx.tamu.edu/publications/Brush%20Buster%20 Pricklypear.pdf The mixture includes a 1% solution. This recommendation is only for prickly pear and all pads must be sprayed.	Light or sparse Prickly Pear stand	Year round except during extremely cold weather.	Plant kill may require two or three growing seasons post application. Apply the spray until the stems and pads are wet, but not to the point of runoff. Recommend using marker dye to avoid multi treatment of the same plants or skipping plants treated.

Plant Name: Creosotebush (Larrea divaricata) and Tarbush (Flourensia cernua)

	Treatment Method	Where Applicable	When Applicable	Remarks
1.	Discing, Rootplow: Cut or in any manner sever the plants at least 4" below ground level. Rootplows should have kickers or fins not over 3' apart to bring roots to surface. Drag chain, on swivels, behind the plow increases the pull-up of plants.	Dense and medium stands where range planting is considered practical and feasible following treatment. (See Range Planting Standards and Specs).	Early part of growing season or coordinated with seeding dates when seeding done in same operation. Brush reduction should be timed with range planting.	Suitable only on soils not subject to erosion.
2.	Grubbing: Cut in any manner to sever the plants at least 4" below ground level.	Light stands with	Year long	
3.	Chemical: Recommended herbicides, chemical rates and mixtures will be applied according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.	Medium to dense canopy having grassland potential.	Summer or fall in anticipation of rainfall.	The cost-return benefits need careful consideration. Grass response may be slow after treatment (up to 5 years).

Plant Name: Ponderosa Pine and Mixed conifer other than Pinon & Juniper. This practice not applicable to forest and/or woodland sites.

Treatment Method	Where Applicable	When Applicable	Remarks
Hand Cutting, Shearing: Cutting Ponderosa Pine and/or mixed conifer above the surface to leave stumps less than 3 to 6"(all green material must be removed). Moderate &/or heavy stands will be stacked & burned &/or burned unless other considerations, such as wildlife, justify not disposing of treated trees. Justification must be documented. Chipping/shredding may be used in lieu of stacking and/or burning.	Where invasion/increase of Ponderosa Pine and/or mixed conifer is occurring.	When environmental conditions are conducive to treatment method.	If chipping and/or shredding are used in lieu of stacking, avoid excess chips on ground that will inhibit plant growth.
Hand Grubbing: Seedlings less than 3 feet tall.	Where invasion/increase of Ponderosa Pine and/or mixed conifer is occurring.	When environmental conditions are conducive to treatment method.	Stacking not required on hand grubbing of seedlings.
Individual tree shredding or chipping. Hydro-axe or Hydro Mower type equipment can be used to reduce the aerial portions of a stand and mulch the soil surface at the same time. Chemical or fire treatment to follow will be necessary to kill resprouting.	Where invasion/increase of Ponderosa Pine and/or mixed conifer is occurring.	When environmental conditions are conducive to treatment method.	A significant safety zone (over 100 meters) must be used in areas where Hydro axe is used.
Bulldozing or Grubbing: Trees must be uprooted and pushed out of the ground. Stack in not more than 5 stacks per acre. Trees may be windrowed or chipped in lieu of stacking. Stack in windrows across the slope.	Moderately deep and deep soils where slope does not exceed 10%.	Year – long except when ground is frozen 10"deep.	Note: Competing shrubs such as oak may invade site without follow-up treatment. Conservationists should encourage the harvest of wood products to minimize waste. Stacking or windrowing is not required on sites where prescribed burning is utilized post

NRCS, NM August, 2005

Plant Name: Ponderosa Pine and Mixed conifer other than Pinon & Juniper. This practice not applicable to forest and/or woodland sites. (continued)

Individual Tree Burning: Use butane or propane torches. Burn when wind velocities are less than 12 miles per hour, temperatures are above 60 degrees F., and relative humidity is less than 65%.	Where species are on light infestation of trees only or as a follow-up treatment.	Winter and spring months, early morning before 10:00 am.	

Plant Name: Juniper

Treatment Method	Where Applicable	When Applicable	Remarks
1. Hand Cutting, Shearing: Cutting one seeded or Utah Juniper above the surface to leave stumps less than 3 to 6" (all green material and scales must be removed). Above ground cutting of alligator juniper is not applicable, unless stumps are treated. Moderate &/or heavy stands will be stacked & burned &/or burned unless other considerations, such as wildlife, justify not disposing of treated trees. Justification must be documented. Chipping may be used in lieu of stacking and/or burning. Hydro-axe or Hydro Mower type equipment can be used to reduce the aerial portions of a stand and mulch the soil surface at the same time. Chemical or fire treatment to follow will be necessary to kill resprouting.	Where invasion of juniper is occurring.	Year long	Alligator juniper stumps must be treated with recommended herbicide as per label. If chipping is used in lieu of stacking, avoid excess chips on ground that will inhibit plant growth.
2. <u>Hand Grubbing:</u> Seedlings less than 3 feet tall. Alligator and Utah Juniper must be cut below bud zone.	Where invasion of juniper is occurring.	Year long	Stacking not required on hand grubbing of Juniper seedlings.

Plant Name: Juniper and Pinon on Rangeland sites. This practice not applicable on forest and/or woodland sites.

	Treatment Method	Where Applicable	When Applicable	Remarks
3.	Bulldozing or Grubbing: Trees must be uprooted and pushed out of the ground. Stack in not more than 3 stacks per acre or 5 stacks per acre where wildlife is a concern, and stand is medium to heavy. Trees may be windrowed or chipped in lieu of stacking. Stack in windrows across the slope. Hydro-axe or Hydro Mower type equipment can be used to reduce the aerial portions of a stand and mulch the surface at the same time. Chemical or fire treatment to follow will be necessary to kill resprouting.	Moderately deep and deep soils where slope does not exceed 10%. Clearing is not approved on areas with 25% or greater cover of competing shrubs or big sage.	Year-long except when ground is frozen 10" deep.	An on-site determination must be made by the FO conservationists where sandy sites occur. NOTE: Conservationists should encourage the harvest of posts and firewood in lieu of stacking and windrowing to minimize waste. Stacking or windrowing is not required if grazing use is reduced in proportion to the area covered by downed trees.
4.	Chemical: Recommended herbicides, chemical rates and mixtures will be applied according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.	Where bushy multistemmed canopy having grassland potential sites. CAUTION: Avoid areas where possible runoff may enter water used for irrigation of susceptible broadleaf species.	Late summer and fall in anticipation of rainfall.	CAUTION: Loss of desirable shrubs and perennial forbs can be anticipated.
5.	Individual Tree Burning: (Nonsprouting species). Use butane or propane torches. Burn when wind velocities are less than 12 miles per hour, temperatures are above 60 degrees f., and relative humidity is less than 65%.	Where the species are nonsprouting types, on light infestation of trees only or as a follow-up treatment.	Winter and spring months, early morning before 10 a.m.	
6.	Cabling/Chaining/With Follow-up: Chaining with a chain that weights enough to hold it close on the ground (70 lbs. per link or more). Cable at least 1&1/8 inch. Cabling/chaining will control a minimum of 70% of target species with follow-up treatment that reflects objectives. Follow-up may include prescribed burning, chemical treatments, and/or other mechanical treatments. Trees will be stacked & burned &/or burned unless other considerations, such as wildlife, justify not disposing of treated trees. Justification must be documented. Chipping may be used in lieu of stacking & burning. Dozer spacing will depend on chain/cable length, dozer size & effectiveness in meeting minimum of 70%control of target species.	Where invasion of Juniper has occurred on 10% or less slopes. Chaining and/or cabling is not allowed where there is a moderate or heavy infestation of Cholla cactus or where light stands may be scattered for possible heavy infestation. Sandy soils may be treated if trees are placed in alternate wind-rows that prevent wind erosion. NOTE: The Ecological Site Description will be used as a benchmark for determination of invasion of Juniper.	Year round except when soils are wet. Recommendations: D- 7 or equivelent tractors pulling a 180' to 250' cable/chain have worked well.	Note: Cabling/Chaining & follow-up treatment must meet 70% minimum control of target species.

Plant Name: Mesquite

	Treatment Method	Where Applicable	When Applicable	Remarks
1.	Hand Grubbing: Plant must be uprooted and cut off below the bud zone.	Light stands only	Year long	Bud zone is usually 6 to 20 inches deep.
2.	Mechanical Grubbing: Plant must be uprooted and cut off below the bud zone.	Light and medium and heavy stands.	Year long	Bud zone is usually 6 to 20 inches deep.
3.	Bulldozing: Plants must be uprooted and cut off below the bud zone. A second application by chemical or mechanical treatment is required where initial reduction is less than 70% canopy reduction.	Light and medium stands		Bulldozing includes any method of control that severs the root below the bud zone. 12-18" as a guide 12" (heavier soils), 18" (Sandy soils)
4.	Root Plowing: Plants must be uprooted and cut off below the root levels minimum of 12." Range planting will be applied in conjunction with this practice.	Dense infestation poor range condition	Prior to seeding date	Follow-up method includes hand grubbing, ground spraying, chemical treatment, or plant dozing.
5.	Chemical Application by Aerial or Ground equipment: Recommended herbicides, chemical rates and mixtures will be applied according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.	Medium to dense stands (including intermingled light stands)	As per label.	Follow-up method includes hand grubbing, ground spraying, or chemical treatment. Plant kill may require two growing seasons or more. Areas of high clay soils tend to have a lower kill rate of target plants when tebuthiuron is used.

Plant Name: Sand Sagebrush

	Treatment Method	Where Applicable	When Applicable	Remarks
1.	Mechanical: Removal of top growth. This may be accomplished by mowing, shredding or beating the top growth so that the twigs or branches are removed within 6" or less of the ground surface. Removal of top growth must be done two consecutive years to complete the practice.	In Lesser Prairie-chicken (LPC) range refer to LPC Interstate Working Group publication "Assessment & Conservation Strategy for the LPC" for further guidance.		
2.	<u>Chemical</u> : Chemical rates and mixtures according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.	In Lesser Prairie-chicken (LPC) range refer to LPC Interstate Working Group publication "Assessment & Conservation Strategy for the LPC" for further guidance.	As per label	CAUTION: Grass damage may occur when applied in the growing season.

Plant Name: Rabbitbrush

	Treatment Method	Where Applicable	When Applicable	Remarks
1.	Rootplowing, At least 6" below surface. Range planting is required as a follow-up measure	Heavy and medium stands	Prior to range planting date	Range planting specifications following control.
2.	<u>Plowing.</u> Plow must cut or sever roots at least 6" below surface. Range planting is required as a follow-up measure.	Heavy and medium stands	Prior to range planting date.	Two plowings required.
3.	Hand Grubbing. Cut or sever plants 5" below the surface.	Light stands only	Year long	
4.	Chemical: Chemical rates and mixtures according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide For New Mexico Rangelands" 400 B-17.		As per label	Rabbitbrush control with herbicides is generally poor and results vary by species.

Plant Name: Shinnery Oak & Shrub Oak

Treatment Method	Where Applicable	When Applicable	Remarks
Chemical: Recommended herbicides, Chemical rates and mixtures according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide for New Mexico Rangelands" 400 B-17.	When in Lesser Prairie-chicken (LPC) habitat refer to LPC Interstate Working Group publication "Assessment & Conservation Strategy for the LPC" for guidance.	As per label.	CAUTION: consideration should be given to leaving clumps of shinnery on dunes where removal of the major portion of vegetation where leave sandy soils subject to wind erosion. CAUTION: Grass damage may occur when applied in the growing season.

Plant Name: Saltcedar (Tamarix spp.)

Treatment Method	Where Applicable	When Applicable	Remarks
Chemical: Recommended herbicides, Chemical rates and mixtures according to manufacturer's label and as recommended in "Chemical Weed & Brush Control Guide for New Mexico Rangelands" 400 B-17. Larger plants may be cut and immediately treated with a cut-stump herbicide formulation.	Anywhere Saltcedar has invaded.	As per label.	Note: Special care should be taken to assure that herbicides used in close proximity to open water closely adhere to label instructions. CAUTION: For some chemicals a 24 month period of no disturbance is required post treatment. Plant kill may require two growing seasons or more.
Mechanical: Dozing, Root plowing, root raking piling and burning. Cut or in any manner sever the plants at least 17" below ground level. Saltcedar is an active sprouter. Saltcedar must be uprooted so that root crown is no longer in contact with soil. Debris should be piled and burned. Root plows should have kickers or fins not over 3' apart to bring roots to surface. Drag chain, on swivels, behind the plow increases the pull-up of plants. Hydro-axe or Hydro Mower type equipment can be used to reduce the aerial portions of a stand and mulch the soil surface at the same time. Chemical or fire treatment to follow will be necessary to kill resprouting.	Anywhere Saltcedar has invaded.	Any time of year when soil moisture conditions permit.	Note: Saltcedar should be up-rooted so that root crown is not in contact with soil.

Plant Name: Algerita

Treatment Method	Where Applicable	When Applicable	Remarks
Chemical: Velpar:** (Hexazinone) at 3 to 4 ml	Anywhere Algerita has invaded	As per label.	CAUTION: Consideration should be given to
per cubic foot of plant.	or increased beyond normal		leaving clumps of Algerita on soils where
Pronone Power Pellets**: (Hexazinone) at 1	range of variability in ESD.		removal of the major portion of vegetation will
pettet per 2 feet of height.			leave sandy soils subject to wind erosion.
Spike 20P** (Tebuthiuron) 0.25ozs. per 3 feet			Plant kill may require two growing seasons
of height. Apply directly to soil surface within			or more. Areas of high clay soils tend to
the root zone. Apply any time of year except			have a lower kill rate of target plants when
onto frozen ground or into snow.			tebuthiuron is used.

^{**}Use of these trade names is not an endorsement of the product by NRCS. They are used here to aid the user in identifying proper rates of application.